

## Summary of Charbert Hydrogen Sulfide Data – May 14 - June 14, 2004

The Rhode Island Department of Environmental Management (RI DEM) has been operating continuous hydrogen sulfide monitors in the neighborhood adjacent to the Charbert facility in Alton since 14 May 2004. One monitor, which is located in a shed at 10 Woodville-Alton Road, across Alton Pond from the facility, operated continuously during that period. A monitor at the second location, a shed at 16 River Street, adjacent to the Charbert lagoons, experienced problems in the earlier weeks but operated continuously between June 7<sup>th</sup> and 14<sup>th</sup>.

During the first three weeks of operation, the Woodville-Alton Road monitor recorded only low levels of hydrogen sulfide. Levels exceeding 2 ppb were recorded during that period for only two 10-minute intervals - a level of 6 ppb at 3:33 AM on Thursday, 27 May and a level of 4 ppb at 11:03 PM on Friday, 28 May.

During the week of June 7- 14, however, substantially elevated hydrogen sulfide levels were recorded several times at both locations. Specifically:

- ◆ Hydrogen sulfide levels at the River Street location were above 2 ppb for 9  $\frac{3}{4}$  hours of the 12  $\frac{1}{2}$  hour period between 9:15 PM on Monday, June 7<sup>th</sup> and 9:50 AM on Tuesday, June 8<sup>th</sup>. The highest 10-minute reading during that period, recorded at 7:00 AM on June 7<sup>th</sup>, was 78 ppb and the highest one-hour average concentration was 49 ppb. Concentrations at the Woodville-Alton Road location reached 27 ppb at 3:30 AM on June 7<sup>th</sup>.
- ◆ Hydrogen sulfide levels at River Street were above 2 ppb throughout the early morning hours (12:30 – 6:50 AM) of Thursday, June 10<sup>th</sup>. The highest reading during that period was 31 ppb, recorded at 3:30 AM and the highest one-hour average concentration was 3 ppb. The highest hydrogen sulfide level at the Woodville-Alton Road monitor during that period was 3 ppb.
- ◆ During the early morning of Saturday, June 12<sup>th</sup>, elevated hydrogen sulfide concentrations were recorded at both locations. Concentrations were above 2 ppb at the Woodville-Alton road monitor for the 3-hour period 4:25 – 7:25 AM. The highest concentration recorded by that monitor during that period was 18 ppb, which was recorded at 6:10 AM. Concentrations were above 2 ppb at the River Street monitor from 5:40 – 8:10 AM and peaked at 19 ppb at 7:10 AM. The highest one-hour averages that morning were 16 ppb at both locations.
- ◆ Hydrogen sulfide levels were above 2 ppb throughout the period from 10:20 PM on Saturday, June 12<sup>th</sup> to 8:50 AM on Sunday, June 13<sup>th</sup>. The highest concentration

during that time period, 51 ppb, was recorded at 8:10 AM; the highest one-hour concentration was 29 ppb. Hydrogen sulfide levels were also sporadically elevated during that period at the Woodville-Alton Road location. The highest concentration recording by that monitor was 23 ppb, recorded at 8:00 AM on the 13<sup>th</sup> and the highest one-hour average concentration was 10 ppb.

- ♦ Hydrogen sulfide levels were also elevated at the River Street location in the early morning hours of Monday, June 14<sup>th</sup>. The peak concentration that morning was 29 ppb, recorded at 5:15 AM, and the highest one-hour average concentration was 21 ppb. Concentrations were not elevated at the other monitor that morning.

In summary, elevated hydrogen sulfide levels were recorded in the late night – early morning hours of five of the seven nights between June 7<sup>th</sup> and 14<sup>th</sup> at the River Street location, which is close to the Charbert lagoons. Concentrations were somewhat lower at the Woodville-Alton Road monitor, but were elevated on three of the nights. Concentrations during late morning and afternoon hours were generally within the background range at both locations.

Table A shows the maximum 10-minute, one-hour and 24-hour average concentrations (in ppb) measured by each monitor during this monitoring period.

Table A Maximum Hydrogen Sulfide Levels

Monitor	Maximum 10-minute Level	Maximum 1-hour Level (HEALTH nuisance range is >2 - <100 ppb)	Maximum 24-hour Level (HEALTH nuisance range is >2 - < 30 ppb)
River Street	78 ppb	49 ppb	7 ppb
Woodville-Alton Rd	27 ppb	19 ppb	3 ppb

The one-hour and 24-hour concentrations fall well within the range of values that are classified as constituting a nuisance by the Rhode Island Department of Health (HEALTH). These levels would clearly be associated with a noticeable rotten-egg type odor. HEALTH warns that people exposed to nuisance levels of hydrogen sulfide may experience nausea and stress from the odors, an increase in non-specific symptoms and a possible exacerbation of chronic respiratory symptoms in hypersensitive individuals. Levels in this range occurred repeatedly throughout the week, especially at the River Street location.

Hydrogen sulfide monitoring is continuing at the two locations. RI DEM also plans to sample for volatile organic compounds in the area in the coming weeks.

For more information about sampling results, contact Barbara Morin at 222-4700, ext. 7012.